

# ENVIRONMENTAL AUDIT COMMITTEE INQUIRY INTO HEAT RESILIENCE AND SUSTAINABLE COOLING

## Overview

Earlier this year, we submitted evidence to the Parliamentary Environmental Audit Committee inquiry into heat resilience and sustainable cooling. The Committee's remit is to consider the extent to which the policies and programmes of government departments and non-departmental public bodies contribute to environmental protection and sustainable development.

The Environmental Audit Committee is undertaking a short inquiry into Heat resilience and sustainable cooling. It will look at the relationship between heat and health; examine the adequacy of current Government policies in relation to current and future need for cooling; and consider what measures could be taken to increase adaptation and resilience to rising temperatures.

You can read our full submission below.

## 1. COLD CHAIN IN THE UK

The cold chain is a network of specialist facilities and vehicles that store perishable goods in a secure temperature-controlled environment. Cold chain exists at every stage of the supply chain from the point of production, through to manufacturing and storage and ultimately on to retail or catering establishments and people's homes.

- The cold chain safeguards the nation's chilled and frozen supply chain maintaining the security, quality and availability of food, pharmaceuticals and other specialist products.
- The UK frozen food industry is worth in excess of £8 billion<sup>1</sup> and the chilled food industry in excess of £12 billion<sup>2</sup>. The cold chain employs in excess of 100,000<sup>3</sup> people in the UK, from warehouse operatives and drivers to systems analysts and robotics engineers.
- The cold chain connects the UK to the world. It makes significant trade in perishable goods possible and is at the foundation of global food and pharmaceutical security.
- The Cold Chain Federation is the voice of the UK's cold chain, with its nearly 300 members operating more than 450 specialist storage facilities and more than 30,000 vehicles across England, Wales, Scotland and Northern Ireland.

## 2. SUSTAINABLE COLD CHAIN IN A WARMING CLIMATE

- Cold chain is a growth sector in the UK, fuelled by a rising population and changing dynamics in how we purchase food and other products. For example, home grocery deliveries, urban 'last mile' demand for hyper convenience and new medicines/vaccines.

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<sup>1</sup> <https://bfff.co.uk/the-frozen-food-report-2022/>

<sup>2</sup> <https://www.chilledfood.org/our-market/>

<sup>3</sup> CCF data

- Overall, the cold chain is a force for climate good. It reduces the waste of perishable products prior to consumption significantly and therefore keeps UK waste emissions lower than in countries with less developed cold chains.
- However, cold chain requires a significant usage of energy, fuel and the use of high GWP refrigerants to operate. The warmer the ambient temperature, the more of these resources are required to achieve the cooling needed to keep products safe.
- A warming UK climate and in particular, hotter summers, will place greater demands on the infrastructure required to keep products cold, eg. refrigeration plant, warehousing fabric and methods of refrigerated transport. In some cases, this is already pushing equipment beyond their designed maximum operating temperatures, risking a greater chance of breaks in the cold chain in the future.
- The existential challenge for the UK's cold chain businesses is that they must grow to continue to feed and provide pharmaceuticals to the population but must do so in a way which is compatible with both a net zero economy and a warming climate.
- The Cold Chain Federation is leading the industry to a sustainable future through our pioneering [Net Zero Project](#), but action from government is needed to overcome some of the barriers we have identified, which are set out in the next section of this evidence.

### **3. SUMMARY OF POLICY RECOMMENDATIONS TO SUPPORT THE DEVELOPMENT OF A SUSTAINABLE AND HEAT RESILIENT UK COLD CHAIN**

#### **3a RECOGNITION OF CRITICAL ROLE OF COLD CHAIN TO UK ECONOMY**

- Cold chain is critical to the provision of safe and high-quality perishable products to UK consumers. This should be better recognised within policy to help safeguard the industry in times of crisis, such as future heatwaves. This could include designation of cold stores as critical infrastructure and better recognition in the planning system for the need for cold chain infrastructure to support the sustainable growth of our urban centres.

#### **3b IMPROVING ENERGY EFFICIENCY IN COLD STORAGE TO PREPARE FOR A NET ZERO ECONOMY AND A WARMER CLIMATE**

- The single biggest long term sustainability challenge for cold store operators is improving energy efficiency to help meet UK net zero goals. Clarity is needed on long term expectations for efficiency improvement in energy intensive industries to 2050. This could be achieved through a long-term commitment to the Climate Change Agreement scheme.
- Warmer temperatures are also pushing some older equipment beyond the maximum thresholds they were designed to work reliably at. Existing support mechanisms for high energy users, such as the Energy Intensive Industries exemption scheme and Industrial Energy Transformation Fund should be expanded and supplemented with additional financial support towards the large capital investments needed to reach the required levels of energy efficiency and to enable the overhaul of older infrastructure not fit for a warmer climate. SMEs are particularly in need of further help.
- There is an urgent requirement for the production of a clear strategy for overcoming grid capacity restrictions at logistics sites which are severely inhibiting sustainable investments and for how large

industrial processes such as cold storage will contribute to the future UK energy system to the future UK energy system.

### 3c DRIVING SUSTAINABLE TRANSPORT REFRIGERATION

- The unique requirements of temperature-controlled vehicle operators must be recognised and considered when developing the UK future freight system. This should include an assessment of the energy need of refrigeration in a warming climate – especially in urban environments where multi-drop deliveries place the greatest strain on refrigeration equipment and heatwaves are most keenly felt.
- To enable a timely transition away from diesel in transport refrigeration, the UK needs a strategy for establishing the network of electric charging and hydrogen refuelling for temperature-controlled trailers at depots and rest areas along the road network. Grant based support for the investment in trials, or adoption of lower emission Transport Refrigeration Unit technologies is also needed to enable operators to bridge the enhanced capital cost of emerging technology.

### 3d SHAPING THE FUTURE OF UK COLD CHAIN

- New approaches and technologies to achieve a more sustainable and resilient cold chain will require new approaches to training. Apprenticeships, skills programmes and career advisory services must specifically reflect the future requirements of the cold chain.
- A government led evaluation of the potential to review commonly held temperature setpoints for frozen food storage and distribution is needed. This could identify the opportunity to significantly save energy and reduce cooling need by lowering temperatures across the frozen cold chain without compromising on product safety or quality.

## 4. SPECIFIC RESPONSES TO SELECTED INQUIRY QUESTIONS

### 4a HOW CAN SUSTAINABLE COOLING SOLUTIONS AND ADAPTATION STRATEGIES BE IMPLEMENTED IN SUCH A WAY AS TO MINIMISE OVERHEATING, REDUCE ENERGY CONSUMPTION AND PREVENT OVERLOADING OF THE ELECTRICITY GRID DURING PEAK DEMAND?

- The UK's cold storage infrastructure is aged, with CCF data estimating that at over half are at least 20 years old with some much older.
- Many of these buildings were not designed to operate to temperatures of 40°C and above that the UK now increasingly experiences during some summers.
- A significant upgrade of existing cold storage facilities may be required to ensure they continue to operate reliably in hot weather.
- It must also be ensured that new buildings and other infrastructure are designed to cope with future projections for temperatures.
- Increasing air temperatures means more energy need to achieve the required cooling to keep food and pharmaceuticals safe – whether that be in buildings or vehicles. Therefore, energy efficiency will be critical in managing the future energy demand of the cold chain.

- There are solutions available to improve efficiency, however there is a significant cost requirement to upgrade buildings to the level required by future heating projections and commitments for a net zero economy by 2050.
- Cold storage is a strong candidate for many of the energy management mechanisms which will be crucial to the UK's future energy supply, such as local generation of renewables, demand side response, waste heat recovery and energy storage.
- A joined-up approach to local planning, improving grid infrastructure and clarity of the role of businesses to support the energy system of the future is required to maximise the opportunities cold stores offer for preventing future overloading of the grid.

**4b TO WHAT EXTENT DO THE GOVERNMENT'S CLIMATE CHANGE RISK ASSESSMENT AND NATIONAL ADAPTATION PROGRAMME (AS WELL AS OTHER RELATED STRATEGIES SUCH AS THE NET ZERO STRATEGY AND HEAT AND BUILDINGS STRATEGY) IDENTIFY AND ADDRESS THE RISKS FROM EXTREME HEAT? (NOTE: THE THIRD NAP, COVERING THE FIVE-YEAR PERIOD FROM 2023-2028, IS EXPECTED TO BE PUBLISHED IN THE SUMMER OF 2023).**

- Current assessments of climate change risk and adaption do not recognise the impact of rising temperatures on temperature-controlled logistics (cold chain).
- Future assessments should include within their scope how rising temperatures will affect the critical infrastructure which we all rely upon for safe storage and distribution of food and pharmaceuticals. Such an assessment could also look at the specific risk to vulnerable people.

**4c HOW CAN CLEANER REFRIGERANTS WITH LOW OR ZERO GLOBAL WARMING POTENTIALS SUPPORT THE UK'S COOLING NEEDS WHILE CONTRIBUTING TO THE NATIONAL EMISSION REDUCTION TARGETS?**

- Estimates of refrigerant emissions in the food cold chain show that refrigerated transport accounts for 0.69MtCO<sub>2</sub>e of emissions and cold storage 0.16MtCO<sub>2</sub>e<sup>4</sup>.
- Low or zero GWP refrigerants will be critical to reducing this impact and this is being driven by the F Gas Regulations.
- The challenge for refrigerant manufacturers is to ensure that low or zero GWP refrigerants are able to operate as efficiently as the refrigerants they are replacing.
- For more specific information on refrigerants see the submission to this inquiry from the Institute of Refrigeration.

**4d HOW EFFECTIVELY IS THE GOVERNMENT WORKING ACROSS DEPARTMENTS AND WITH LOCAL AUTHORITIES TO ENSURE A COORDINATED APPROACH IS TAKEN TO HEAT RESILIENCE?**

- Policies affecting cold chain, much like other forms of cooling, fall across multiple government departments. For example, Defra (food and refrigerant policy), DESNZ (net zero, energy efficiency, non-road mobile machinery), DfT (refrigerated transport), DLUHC (warehousing) etc.

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<sup>4</sup> Foster, A., Brown, T. and Evans, J. (2023). Carbon emissions from refrigeration used in the UK food industry. International Journal of Refrigeration <https://doi.org/10.1016/j.ijrefrig.2023.01.022>

- We would like to see a single department take ownership for overseeing and supporting net zero transition and heat resilience adaptation in the UK's cold chain.
- A key part of this role would be providing advice to local governments on building development, crisis planning and other devolved matters relevant to the future cold chain to ensure a consistent approach to decarbonisation and heat resilience adaptation across the country.

#### 4e DOES THE UK NEED A DEDICATED HEAT RESILIENCE STRATEGY? WHAT LESSONS CAN BE LEARNED FROM OTHER NATIONS WHEN IT COMES TO NATIONAL STRATEGIES FOR HEAT RESILIENCE?

- A heat resilience strategy for the UK is needed to help businesses and policy makers at all levels plan for and understand the impact future projections for temperature will have on critical services, such as cold chain.
- The strategy should include a thorough assessment of the current and future resilience of all forms of cooling in the UK to projected temperature rises. Specific areas we would like to see included would be:
  - o An assessment of the future demand for all forms of cooling in the UK and how this could impact energy demand and net zero obligations.
  - o An assessment of the cost required to future proof existing infrastructure to continue to operate in warmer temperatures and a long-term commitment to support businesses (through financial and non-financial mechanisms) to make their operations energy efficient and heat resilient.
  - o The recognition, identification and designation of temperature-controlled warehousing as critical infrastructure at risk during periods of hot weather and energy blackouts.
- Well-functioning temperature-controlled supply chains exist in countries with temperatures much warmer than the UK – but they are designed differently. There is a significant opportunity for UK businesses to learn from international partners about adapting and operating in hotter temperatures. The industry would welcome programmes seeking to forge such partnerships.

**FOR FURTHER INFORMATION OR QUERIES, PLEASE CONTACT TOM SOUTHALL.**